



Food and Agriculture
Organization of the
United Nations

Towards a digital public infrastructure for deforestation-related trade regulations

What is in that plot? (Whisp) solution to implement convergence of evidence



SHOUT
SHARE **IT**



Towards a digital public infrastructure for deforestation-related trade regulations

What is in that plot? (Whisp) solution to implement convergence of evidence

D'Annunzio, Rémi

O'Brien, Victoria

Arnell, Andrew

Neeff, Till

Fontanarosa, Roberto

Valbuena Perez, Pilar

Shapiro, Aurélie C.

Sanchez-Paus Díaz, Alfonso

Merle, Caroline

Vega, Jonathan

Fox, Julian

Food and Agriculture Organizations of the United Nations

Rome, 2024

Required citation:

D'Annunzio, R., O'Brien, V., Arnell, A., Neeff, T., Fontanarosa, R., Valbuena Perez, P., Shapiro, A.C., Sanchez-Paus Díaz, A., Merle, C., Vega, J. & Fox, J. 2024. *Towards a digital public infrastructure for deforestation-related trade regulations - What is in that plot? (Whisp) solution to implement convergence of evidence*. Rome, FAO. <https://doi.org/10.4060/cd0957en>

The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations (FAO) concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.

The views expressed in this information product are those of the authors and do not necessarily reflect the views or policies of FAO.

© FAO, 2024



Some rights reserved. This work is made available under the Creative Commons Attribution-NonCommercialShareAlike 3.0 IGO licence (CC BY-NC-SA 3.0 IGO; <https://creativecommons.org/licenses/by-nc-sa/3.0/igo/legalcode>).

Under the terms of this licence, this work may be copied, redistributed and adapted for non-commercial purposes, provided that the work is appropriately cited. In any use of this work, there should be no suggestion that FAO endorses any specific organization, products or services. The use of the FAO logo is not permitted. If the work is adapted, then it must be licensed under the same or equivalent Creative Commons licence. If a translation of this work is created, it must include the following disclaimer along with the required citation: "This translation was not created by the Food and Agriculture Organization of the United Nations (FAO). FAO is not responsible for the content or accuracy of this translation. The original English edition shall be the authoritative edition."

Disputes arising under the licence that cannot be settled amicably will be resolved by mediation and arbitration as described in Article 8 of the licence except as otherwise provided herein. The applicable mediation rules will be the mediation rules of the World Intellectual Property Organization <http://www.wipo.int/amc/en/mediation/rules> and any arbitration will be conducted in accordance with the Arbitration Rules of the United Nations Commission on International Trade Law (UNCITRAL).

Third-party materials. Users wishing to reuse material from this work that is attributed to a third party, such as tables, figures or images, are responsible for determining whether permission is needed for that reuse and for obtaining permission from the copyright holder. The risk of claims resulting from infringement of any third-party-owned component in the work rests solely with the user.

Sales, rights and licensing. FAO information products are available on the FAO website (www.fao.org/publications) and can be purchased through publications-sales@fao.org.

Requests for commercial use should be submitted via: www.fao.org/contact-us/licence-request. Queries regarding rights and licensing should be submitted to: copyright@fao.org.

Contents

Abbreviations	iv
Context	1
Convergence of evidence	1
Asset registry	1
What is in that plot? (Whisp)	3
Technical specifications	4
Access pathways	5
Risk analysis: example in Cameroon, agroforestry cocoa	5
References	8
Appendices	9
Appendix 1.	
Public geospatial layers included in Whisp	9
Appendix 2.	
Example of the Whisp application programming interface output table	11
Appendix 3.	
Deforestation Regulation requirements and the Sustainable Agriculture for Forest Ecosystems	12
Appendix 4.	
The Forest Data Partnership, Accelerating Innovative Monitoring for Forests programme and AgStack	13

Figures

1. The Whisp application programming interface	3
2. Whisp on EarthMap	4
3. Whisp in Ground	5
4. Development journey of Whisp, 2024	5
5. Risk analysis of the agroforestry cocoa in Cameroon	6
6. Decision tree on deforestation risk assessment using Whisp output at plot level.	7
A3.1. Zero Deforestation Hub	12

Tables

A1.1. Public geospatial layers included in Whisp	9
A2.1. Example of the Whisp application programming interface output table	11

Abbreviations

AIM4Forests	Accelerating Innovative Monitoring for Forests programme
API	application programming interface
CICC	Interprofessional Council of Cocoa and Coffee
DPI	Digital Public Infrastructure
EU	European Union
EUDR	European Union Deforestation Regulation
EUFO	European Union Forest Observatory
FAO	Food and Agriculture Organization of the United Nations
FDaP	Forest Data Partnership
GFC	Global Forest Commission
GLAD	Global Land Analysis and Discovery
RADD	Radar for Detecting Deforestation
SAFE	Sustainable Agriculture for Forest Ecosystems programme
TEI	Team Europe Initiative
TMF	tropical moist forest
WDPA	World Database on Protected Areas
Whisp	What is in that plot? solution

Context

FAO drives the development of a pre-competitive digital public infrastructure to support compliance on aspects of the trade regulations related to forest monitoring. This is a collaborative effort between partners and programmes such as European Union's Team Europe Initiative (TEI)¹, the [Accelerating Innovative Monitoring for Forests programme \(AIM4Forests\)](#) and the [Forest Data Partnership \(FDaP\)](#) working with the [AgStack Foundation](#). This joint effort aims to support smallholders by enabling ongoing access to regulated markets through open-source solutions designed to bridge crucial digital gaps (for more information, see [Appendix 3](#) and [Appendix 4](#)).

Several new regulations have been implemented, and others are on the horizon: The European Union recently adopted the European Union Deforestation (EUDR)² to minimize the risk of deforestation and forest degradation associated with products placed on and exported from the European Union single market. Other consumer markets (such as the United Kingdom of Great Britain and Northern Ireland, as well as the United States of America) are in the process of drafting regulations with similar objectives.

CONVERGENCE OF EVIDENCE

The Forest Data Partnership and AIM4Forests aim to align stakeholders to reach consensus around key datasets and address critical gaps in the ever-expanding landscape of forest monitoring data.

Many satellite-derived forest, land-use and tree-cover maps are publicly available, such as the Forest 2020 layer of the European Union Forest Observatory (EUFO); however, these products often show substantial differences, partly due to contradicting definitions and land-cover classification systems used. Rather than choosing a single dataset, the various datasets should be used together. When translating definitions into common terms, the datasets can provide more nuanced, complementary details on a specific plot. (The European Forest Institute [EFI] offers additional details on [the role of geospatial information for EUDR due diligence](#).)

As such, FDaP and AIM4Forests promote a convergence of evidence approach. **No single definitive source of geospatial data can tell the whole story around any given plot of land;** rather, various existing datasets contribute to understanding what has most probably occurred at that location and support to lessen the impact of individual biases or errors present in any single piece of evidence or data source.

ASSET-REGISTRY

Some regulations demand a due diligence to include “the geolocation of all plots of land where the relevant commodities... were produced” (e.g. European Union, 2023, p. 225).

The AgStack Foundation developed a minimum viable product to cover that requirement in the framework of a collaboration with the Digital Integration of Agricultural Supply Chains Alliance (DIASCA). The asset registry is a free public registry to create and maintain unique, ubiquitous and geo-intelligent “public geoIDs” for field boundaries without requiring any other attribution. It is addressable but not discoverable; geoIDs are anonymous and do not carry any other information.

The asset registry allows for the creation of boundaries and standardization of existing vector files, while ensuring seamless shareability and interoperability with any system through its application programming interface (API). (The Python code is open-source and available at <https://github.com/agstack/asset-registry>).

1 Launched at the Twenty-eighth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28). See https://international-partnerships.ec.europa.eu/news-and-events/news/global-gateway-eu-and-member-states-launch-global-team-europe-initiative-deforestation-free-value-2023-12-09_en

2 Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No. 995/2010. See <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A32023R1115>

What is in that plot? (Whisp)

The solution, **What is in that plot? (Whisp)**, is an open-source solution to implement the convergence of evidence approach within any plot of land to produce relevant forest monitoring information and support the due diligence process for the zero deforestation requirement.

The geospatial analysis provides insight on what various datasets suggest is contained in a given plot at the cut-off date (31 December 2020). Each dataset is chosen for its relevance to informing land use. When considered together, they provide a base for a convergence of evidence approach.

The analysis consists of extracting zonal statistics (counting relevant pixels) from a series of public datasets for a set of polygons (a plot of land). The geospatial analysis is presented in a tabular form where each geoID is a unit of information.

The types of datasets reported on are categorized as follows:

- 1) forest and tree cover at the end of 2020;
- 2) deforestation since 2020;
- 3) crop plantations and other agricultural uses; and
- 4) areas of significance for conservation.

For more info see [Appendix 1](#).

TECHNICAL SPECIFICATIONS

The source code is public and available at <https://github.com/forestdatapartnership/whisp>.

Whisp is currently powered by Google Earth Engine (GEE).

Inputs include:

- a **list of geoIDs** from the asset registry (one for each plot of land to monitor; for example, *0520cfac98fbc1bd7952b1c07a9f6983b83625722b6f665ea83ac9aad3512918*); and
- a customized selection of geospatial layers to include in the analysis (for an example, see [Appendix 1](#)).

Outputs include:

- a **table** with statistics on tree cover, forest and commodities from geospatial layers to effectively implement the convergence of evidence approach (see the output example in Appendix 2); and
- a **link** to a satellite image visual interpretation interface (done through a [Collect Earth Online](#) project that allows users to visualize each plot processed through Whisp with time-tagged, high-resolution satellite data; for an example, see <https://app.collect.earth/collection?projectId=40466>).

ACCESS PATHWAYS

Three access pathways are available for Whisp – all intended to ensure reproducibility among each other.

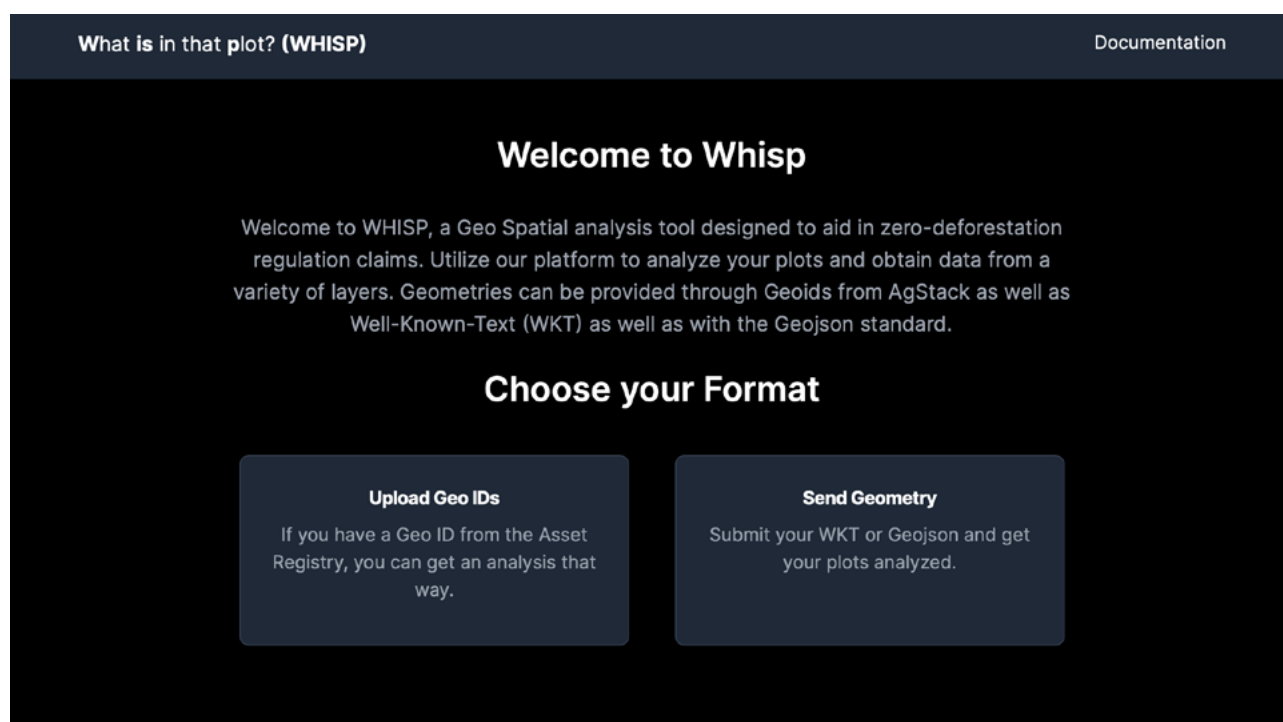
1. AS AN OPERATIONAL APPLICATION PROGRAMMING INTERFACE (API) TO EXTRACT STATISTICS FOR PLOTS OF LAND

Users can choose to either use the user interface to send a single geoID or multiple geoIDs, or they can make a call to the [Whisp API](#) from their own software. The API is capable of processing lists of geoIDs or geometries and can perform geospatial analysis. The input may include pre-existing geoIDs or various types of geometries (such as .shp, .kml, .geojson, .csv and .wkt).

The Whisp API:

- is designed for any user that wants to produce land cover information on given plots of land;
- can be used by operators, third-party verifiers and government authorities in producing and consumer countries;
- facilitates the interface between the AgStack asset registry and the processing of datasets to implement the convergence of evidence approach;
- is meant to be interoperable with any geolocation system written in usual programming languages (Python and JavaScript [JS]); and
- provides a direct link to Collect Earth Online (CEO) and Collect Earth desktop (CE) as a verification application for visual validation, which could be used by competent authorities for verification purposes, checking the entirety of the plots submitted or a given subsample.

Figure 1. The Whisp application programming interface



Source: Authors' own elaboration.

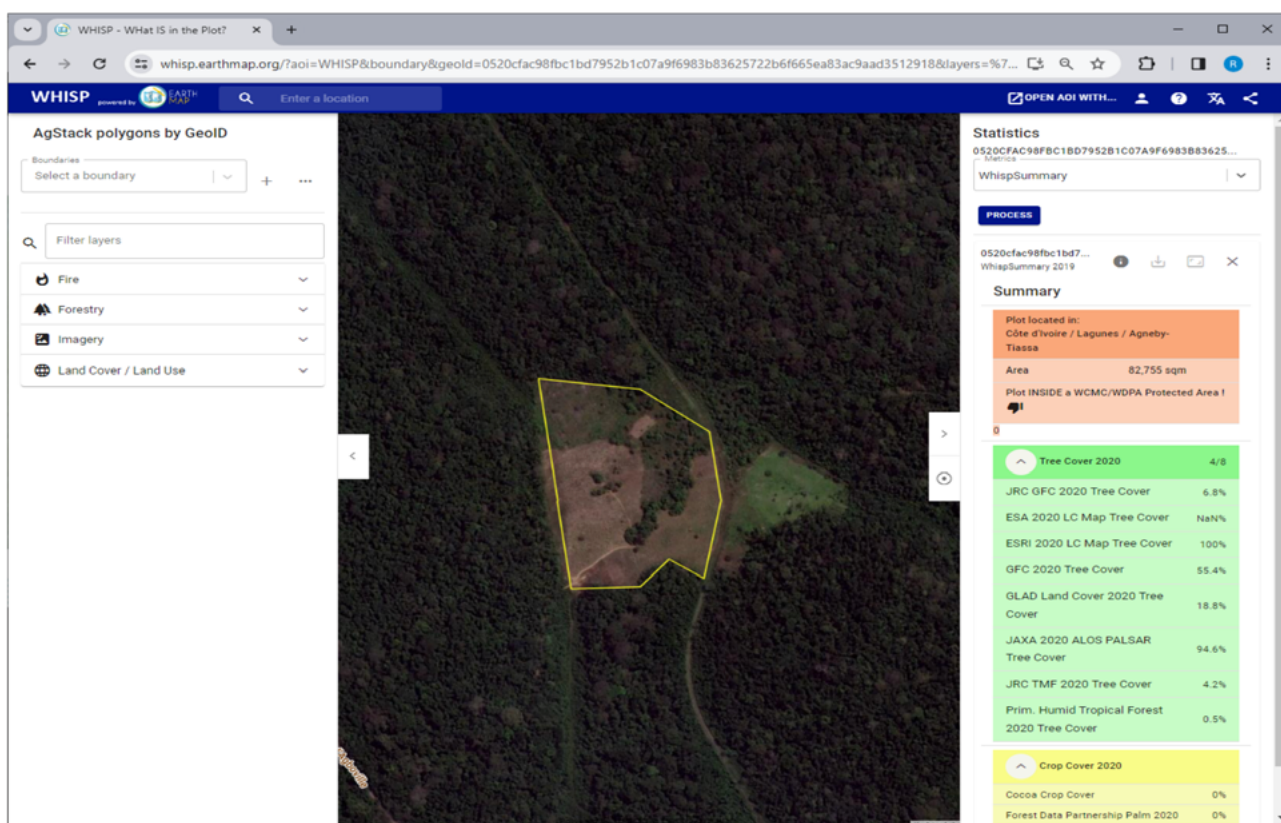
2. AS AN EARTHMAP SPINOFF FOR DEMONSTRATION PURPOSES

Whisp on EarthMap – designed for demonstration and visualization purposes – enables users to input AgStack-generated geolDs or draw a geometry directly on the screen, and thoroughly explore underlying sources of data. Using a graphical interface (GUI), users can effortlessly choose and select data sources to include in the geospatial analysis. The wide array of available data is organized into user-friendly categories (such as forestry, land cover/land use and biodiversity).

Furthermore, Whisp on EarthMap includes user-friendly features such as analysing AgStack polygons, generating summary statistics and enabling bulk processing of polygons for quicker analysis.

It will also serve as a user interface to AgStack to improve the interaction of smallholders and cooperative representatives in managing and editing their plots, as well as facilitating monitoring.

Figure 2. Whisp on EarthMap



Source: Authors' own elaboration.

3. AS A FEATURE IN MOBILE APPS TO ENABLE SMALLHOLDERS TO OWN THEIR MONITORING DATA

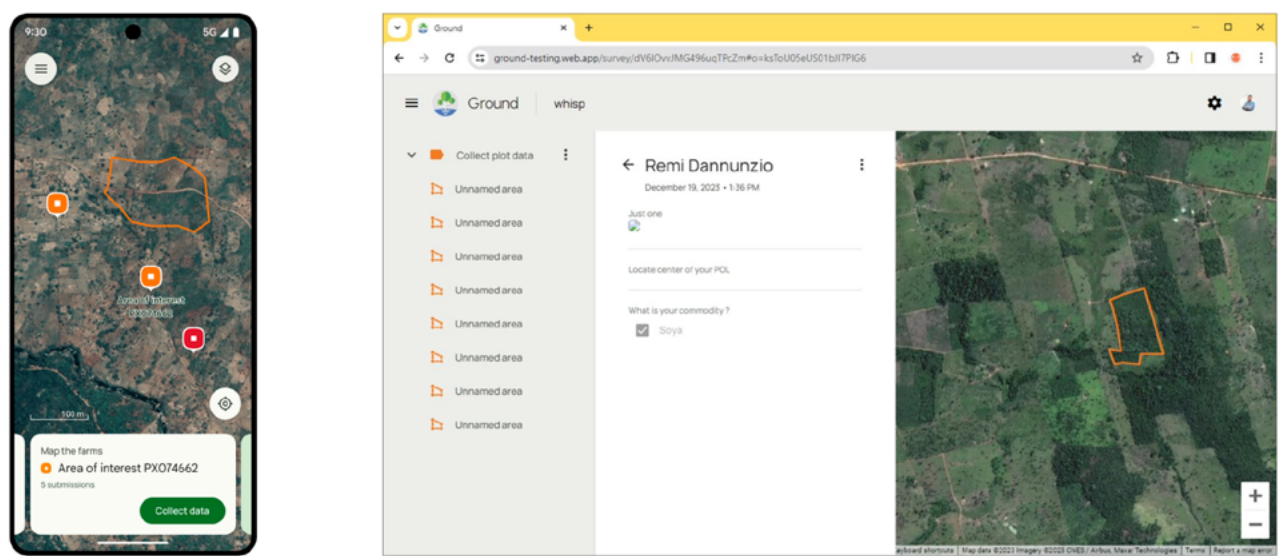
To enable smallholders to produce monitoring data, Whisp can be added to geolocation mobile applications to offer a solution for creating geoIDs on the go and generating the main table output. This enables smallholders to generate comprehensive information on their mobile devices in a few steps.

Notably, Whisp is available in the [Ground](#) app. **Whisp in Ground** allows collecting data in two ways:

- by drawing the plot of land on the screen over recent satellite imagery that covers the area of interest; or
- by enabling the global positioning system (GPS) on the mobile device and taking points along the way.

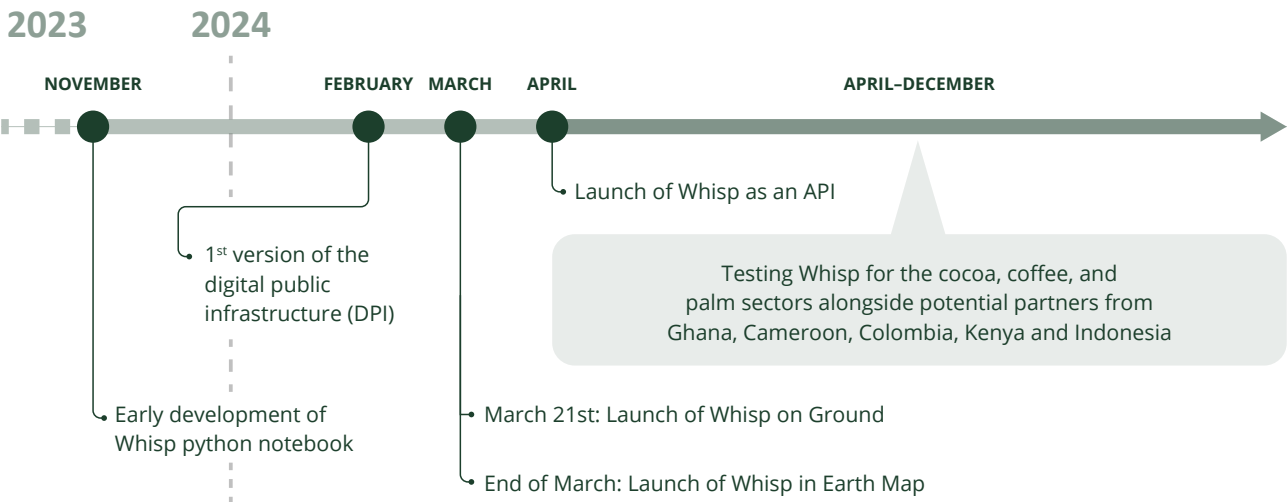
Unique geoIDs and related information are generated and shown on the app. Users have the option to export these geoIDs as a .csv file.

Figure 3. Whisp in Ground



Source: Authors’ own elaboration.

Figure 4. Whisp timeline



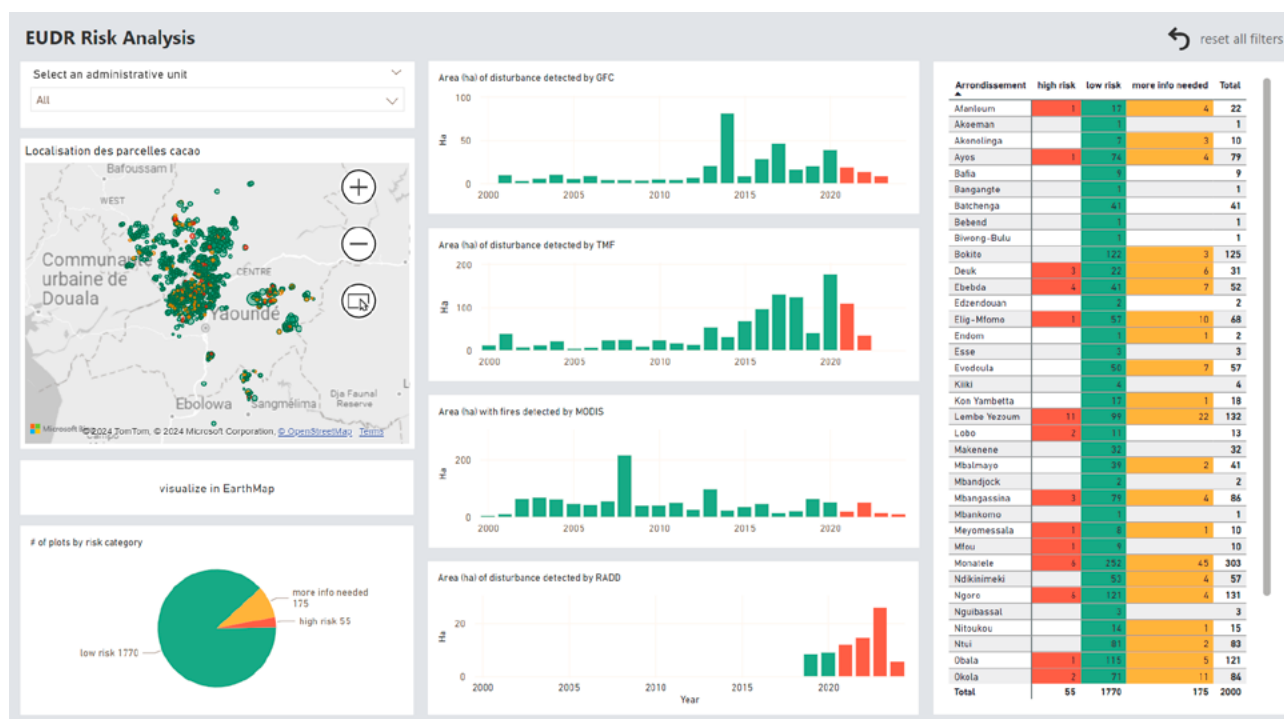
Source: Authors’ own elaboration.

RISK ANALYSIS: EXAMPLE IN CAMEROON, AGROFORESTRY COCOA

The different columns of information from Whisp can be combined into a decision tree to provide deforestation risk assessments at the plot level. We provide here a formatted example with a set of [2000 polygons of agroforestry cocoa in Cameroon](#), courtesy of the [Interprofessional Council of Cocoa and Coffee \(CICC\)](#). Even without a commodity layer, in the very challenging landscape of agroforestry cocoa in Cameroon, the process can still infer information for many plots (~90%) and assess the deforestation risk in a conservative manner. As tools are interoperable, the different implementation pathways can be used to visualize individual polygons in <https://whisp.earthmap.org> and understand better what is happening, at a plot level.

Those analytical tools could for instance be useful to the European Union state Members competent authorities³ to have an overview of the compliance claims.

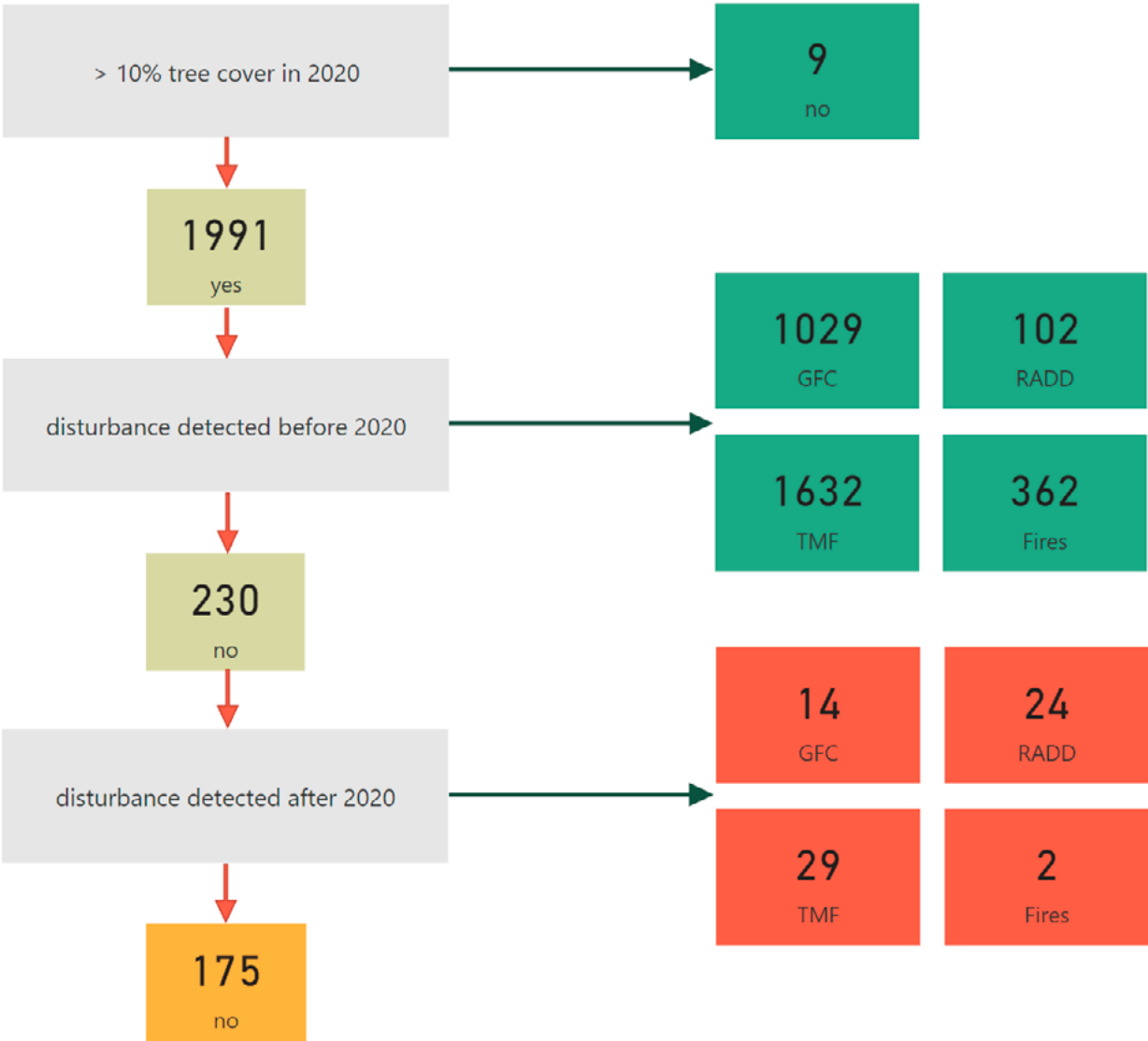
Figure 5. Risk analysis of the agroforestry cocoa in Cameroon.



Source: Authors' own elaboration.

³ European Union competent authorities are the national government bodies responsible for implementing and enforcing EU legislation in their respective member states. They play a crucial role in ensuring the smooth functioning of the EU single market.

Figure 6. Decision tree on deforestation risk assessment using Whisp output at plot level.



Source: Authors' own elaboration.

References

European Union. 2023. *Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market and the export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No. 995/2010*, 2023. Also available at: <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC217414>

Appendices

APPENDIX 1 PUBLIC GEOSPATIAL LAYERS INCLUDED IN WHISP

For most recent dataset preparation script, see here:

<https://github.com/forestdatapartnership/whisp/blob/main/modules/datasets.py>

Table A1.1. Public geospatial layers included in Whisp.

Dataset name	Asset ID	Description of zonal statistics applied
EUFO_2020	ee.ImageCollection("JRC/GFC2020/V1")	Binary values, where 1 is forest.
GLAD_Primary	ee.ImageCollection (‘UMD/GLAD/PRIMARY_HUMID_TROPICAL_FORESTS/v1’) Ancillary data: ee.Image("UMD/hansen/global_forest_change_2022_v1_10");	Binary input layer representing primary forest in 2001. Loss pixels between 2001-2020 were then removed (using the ancillary GFC data product).
TMF_undist	ee.ImageCollection('projects/JRC/TMF/TransitionMap_Subtypes')	Select tropical moist forest classes in 2020 representing undisturbed cover (i.e. classes 10, 11 and 12).
JAXA_FNF_2020	ee.ImageCollection('JAXA/ALOS/PALSAR/YEARLY/FNF4')	Select dense and non-dense forest classes (i.e., classes 1 and 2), and data from the year 2020.
GFC_TC_2020	ee.Image("UMD/hansen/global_forest_change_2022_v1_10");	Select areas of tree cover over 10 percent and remove loss pixels between.
GLAD_LULC_2020	ee.Image('projects/glad/GLCLU2020/v2/LCLUC_2020')	Select classes from the 2020 land cover map representing stable tree cover over 5m in height (i.e. classes 27 to 48, and 127 to 148).
ESA_TC_2020	ee.Image("ESA/WorldCover/v100/2020")	Select trees and mangrove classes (i.e., 10 and 95) for 2020.
TMF_disturbed	ee.ImageCollection('projects/JRC/TMF/TransitionMap_Subtypes')	Select classes representing tree cover classified as degraded, regrowth or with some ongoing deforestation in 2020 (i.e., classes 21-26; 61-62; 31-33; 63-64; 51-54; 67 and 92-94)
RADD_alerts	ee.ImageCollection('projects/radar-wur/raddalert/v1') Ancillary data: ee.ImageCollection('UMD/GLAD/PRIMARY_HUMID_TROPICAL_FORESTS/v1')	Select confirmed (i.e., class 3) alerts since 2020. Alerts filtered to within forest using the ancillary dataset (GLAD Primary).

Dataset name	Asset ID	Description of zonal statistics applied
TMF_plant	ee.ImageCollection('projects/JRC/TMF/v1_2021/TransitionMap_Subtypes')	Select classes representing any type of plantation (i.e., classes 81-86).
Oil_palm_Descals	ee.ImageCollection('BIOPAMA/GlobalOilPalm/v1')	Mosaic image collection into a single image. Selected classes from the "classification band" representing Industrial and Smallholder closed-canopy oil palm plantations(i.e. classes 0 and 1).
Oil_palm_FDaP	ee.ImageCollection("projects/forestdatapartnership/assets/palm/palm_2020_model_20231026");	Binary layer. For select countries only (currently unpublished data).
Cocoa_ETH	ee.Image('projects/ee-nk-cocoa/assets/cocoa_map_threshold_065')	Binary product where 1 represents cocoa. Product derived from a cocoa probability map where the recommended threshold of >65%, had already been applied.
WDPA	ee.FeatureCollection("WCMC/WDPA/current/polygons"); Ancillary raster (template): ee.Image("UMD/hansen/global_forest_change_2022_v1_10");	Select all protected area polygons, apart from those with a status of 'Proposed' or 'Not Reported' or designation of 'UNESCO-MAB Biosphere Reserves' (following the WDPA User Manual and https://www.protectedplanet.net/en/resources/calculating-protected-area-coverage). Rasterised to 10 m resolution (using ancillary template dataset).
Country	ee.FeatureCollection("projects/ee-andyarnellgee/assets/p0004_commodity_mapper_support/raw/gadm_41_level_1"); Ancillary raster (template): ee.Image("UMD/hansen/global_forest_change_2022_v1_10");	Centroid of plot used to determine country.

Source: FDaP. 2024. Lookup GEE datasets. In: Forest Data Partnership – GitHub. [Cited 17 January 2024]. https://github.com/forestdatapartnership/whisp/blob/main/parameters/lookup_gee_datasets.csv

APPENDIX 2. EXAMPLE OF THE WHISP APPLICATION PROGRAMMING INTERFACE (API) OUTPUT TABLE

Table A2.1 shows data from plots of land using the **Plot ID** as a simple identifier when multiple plots are submitted (for example, in the first entry, the Plot ID is 1). GeoID is a unique identifier for the geographical location. **Area (ha)** represents the area of the plot in hectares (for Plot ID 1: 4.2). **Country** presents the International Organization for Standardization (ISO) country code in which the plot is located (for Plot ID 1: GHA is Ghana). All other values for input layers indicate the percent coverage of the plot (for Plot ID 1: there is a coverage of 19 percent regarding the EUFO 2020 layer and 0 percent coverage for Global Land Analysis and Discovery **(GLAD) Primary**; Radar for Detecting Deforestation **(RADD) alerts** and World Database on Protected Areas **(WDPA)** indicate the presence of deforestation risk and coverage by protected areas, respectively).

Table A2.1. Example of the Whisp application programming interface (API) output table

Plot ID	Geo id	Area ha	Country	EUFO 2020	GLAD Primary	TMF undist	JAXA FNF 2020	GFC TC 2020	GLAD LULC 2020	ESA TC 2020	TMF disturbed	RADD alerts	TMF plant	Oil Palm Descals	Oil palm FDaP	Cocoa ETH	WDPA
1	ef2f7c46fbc4fc892fdb81f9 a31c9c507b9f1e45485042 47dcbbab28cf8e436c	4.2	GHA	19	0	5	99	35	47	93	64	–	0	0	0	0	–
2	97408ef7bdac487e4a42e4 abf20492b786310889fd4b 0478603e2d0004c40bfb	16.7	GHA	100	87	95	100	100	89	100	5	TRUE	0	0	0	0	TRUE
3	c288d6c94efa9011c0e345 2af9f7fa0941661377030e 10d29c68764617f9816d	31.4	IDN	0	0	0	5	0	71	93	0	–	100	98	82	0	–
4	1a41a309ae2387f36a604c 9a6c81887e64357a7f61d2 28758e23ef766286fcd7	2	IDN	0	0	0	85	0	19	99	1	–	0	0	4	0	–
5	0520cfac98fbc1bd7952b1c 07a9f6983b83625722b6f6 65ea83ac9aad3512918	8.3	CIV	5	0	0	95	62	20	75	4	TRUE	0	0	0	0	TRUE
6	fa2aff0d60cf1bc0e1f1dd4b 91daf932940c31c021ca1b 84f5b9445855eef02f	3.6	CIV	41	0	0	99	44	99	97	6	–	0	0	0	0	–

Source: Authors’ own elaboration.

APPENDIX 3. DEFORESTATION REGULATION REQUIREMENTS AND THE SUSTAINABLE AGRICULTURE FOR FOREST ECOSYSTEMS

One of the regulations already implemented is the European Union Deforestation Regulation (EUDR). The EUDR mandates that companies introducing agricultural products to the EU market must demonstrate that the production origin has not contributed to deforestation. With the regulation coming into effect on 31 December 2024, there is a pressing need for agricultural producers, trade and industry to establish effective mechanisms to support compliance claims and prevent exclusion from the EU market. By the end of 2024, operators trading cattle, cocoa, coffee, oil palm, rubber, soybean, wood and their derived products to or from the European Union will have to present due diligence that ensures legal, deforestation-free production.

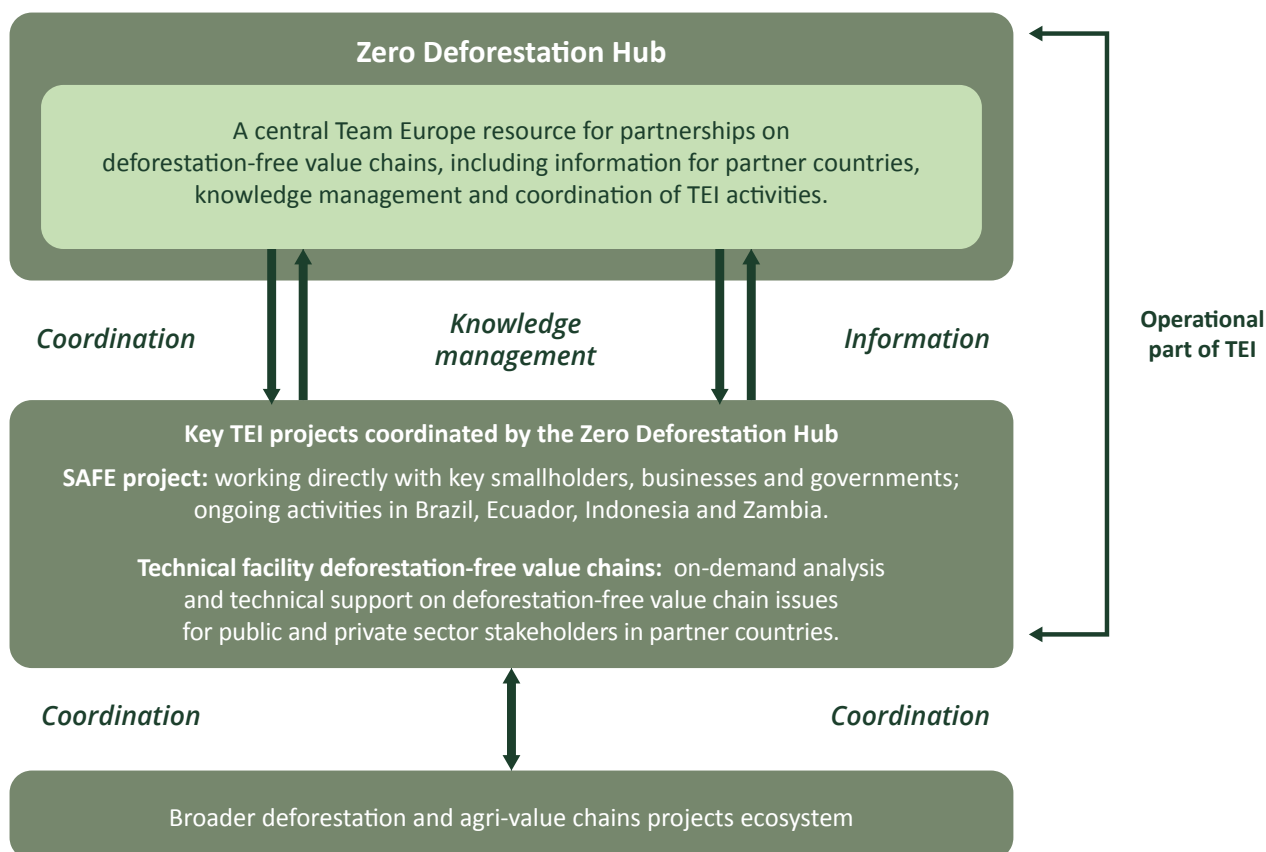
There are technical difficulties towards undertaking such due diligence on deforestation of commodity production, especially for the most vulnerable market participants: smallholders, Indigenous Peoples and local communities.

The minimum technical needs to enable risk assessment include:

- information on geolocation of production sites; and
- information on land use, forest cover and deforestation.

The Sustainable Agriculture for Forest Ecosystems (SAFE) programme, co-funded by the European Union and the German Federal Ministry for Economic Cooperation and Development (BMZ) and implemented by the German Agency for International Cooperation (GIZ), aims to facilitate an inclusive transition towards legal, deforestation-free value chains in preparation for the EUDR. The project provides enhanced technical assistance and capacity-building based on the needs in partner countries in creating and enabling environments to ensure access to the EU market. Expected areas of work include needs assessments, geolocation, land-use mapping and traceability systems.

Figure A3.1. Zero Deforestation Hub



Source: Authors' own elaboration.

APPENDIX 4. THE FOREST DATA PARTNERSHIP, ACCELERATING INNOVATIVE MONITORING FOR FORESTS PROGRAMME AND AGSTACK

FOREST DATA PARTNERSHIP

The Forest Data Partnership strengthens collaboration and application around global monitoring of commodity-driven deforestation, forest degradation and restoration efforts across the globe. Governments and companies around the world are pledging to help end deforestation and accelerate restoration to avert the worst impacts of climate change, protect against biodiversity loss and safeguard the many benefits of forests to people and nature.

The partnership aims to halt and reverse forest loss from commodity production by collaboratively improving global monitoring and supply chain tracking, as well as accelerating restoration. It aligns partners around the data and ensures access for stakeholders across sectors to open-source data on geospatial forest-risk commodities that is consistent and validated. The result is credible, systematic monitoring, verification and accountability towards progress in reducing commodity-driven deforestation and restoring degraded lands.

ACCELERATING INNOVATIVE MONITORING FOR FORESTS

Under AIM4Forests, FAO works with funding from the United Kingdom of Great Britain and Northern Ireland to accelerate country capabilities in forest monitoring as a part of global efforts to stop deforestation and forest degradation, as well as restore forests. This also includes supporting forest monitoring systems that can enable effective due diligence against consumer-side deforestation requirements. Countries need dedicated solutions and platforms (such as Whisp) and technical assistance to develop datasets and processes in support of deforestation-free commodity production.

AGSTACK

AgStack is an open-source digital infrastructure project – under the umbrella of the Linux Foundation – for the world's agriculture ecosystem. It aims to create a common, neutral and open digital infrastructure that can enable content creation and consumption at scale in the agricultural and forestry ecosystem. It will leverage existing technologies such as agriculture standards, public data, models and open-source projects. It is intended to be used by a wide range of stakeholders in the agricultural ecosystem, including farmers, agricultural companies, researchers and government agencies.



© BuddeeWiangngorn

WITH THE FINANCIAL SUPPORT OF:



CD0957EN/1/06.24